[Drop Sets in Resistance Training](#)

[High-intensity weight training](#) differs from traditional resistance training in that it involves performing a set to momentary muscular failure, that is, the point at which the weight or resistance can't be moved for another repetition. Traditional resistance training normally makes use of multiple sets per exercise, each set for a fixed number of reps, and not necessarily to failure. One way to increase the intensity of sets in high-intensity training is through the use of drop sets.

Drop sets — what they are

When performing a set in high-intensity weight training, the goal is to reach momentary muscular failure, at which point all muscle motor units are recruited and the anabolic (muscle-building) stimulus is maximized.

Lifting to failure does not mean lifting until you think it's too difficult, or to when you feel like stopping, but when you physically cannot complete another single repetition. Reaching failure requires dedication and supreme effort.

Sometimes it's hard to know whether you have truly reached failure. At the end of the set, you can be wondering whether you stopped too soon, could you have done another rep, did I wimp out and not get to failure?

This is where drop sets come in. Drop sets allow you to ensure that you've really lifted until failure.

"Drop" in drop sets means dropping the weight. When you perform a set to failure, you then drop the weight by 10 to 15%, and then immediately perform the same exercise to failure, which might involve only 1 or 2 more reps. You can then drop the weight again, repeat, and do this several times. Doing this with as little time between changing the load is crucial; you don't want to

rest, to give your muscles time to recover.

By the time you get to the end of a drop set, the muscles involved are completely fatigued and you know you've gone to failure. You may find that you can't do another rep using a weight only half as heavy as the one you started with.

Do drop sets work?

The number of variables and techniques in weight training is almost as many as the number of practitioners. Everyone swears by what works for them, but unfortunately [many of the traditional practices in weight training have little scientific backing.](#)

Many practitioners of high-intensity weight training, such as Mike Mentzer, have recommended drop sets, but science should have the final word.

[One recent study](#) assigned participants to one of three different groups: breakdown (drop) sets, heavy-load breakdown, and traditional (multiple set) training, twice a week for 12 weeks. There were no significant differences in muscular endurance or body composition between groups.

[Another study](#) had participants doing only one exercise, dumbbell curls, either 3 sets of low-load curls, 3 sets of high-load, or one drop set, all performed to momentary muscular failure. Muscle cross-sectional area (a proxy for muscle mass), increased similarly in all groups. Muscular endurance improved more in either drop set or low-load. Maximum strength increased only in the high-load and drop set conditions. The drop-set group had the lowest amount of training time per session. The authors concluded that drop sets were as good as multiple sets but with less training time.

In [another study](#), participants performed either a single drop set or 3 sets to failure with 90 seconds rest between sets on a single exercise, the cable triceps push-down. Muscle strength and size increased in both groups, and acute markers of muscle stress were greater in drop set. The authors concluded that "superior muscle gains might be achieved" with a single drop set compared to multiple sets.

What can we conclude about drop sets from these studies?

One study showed no difference, another was mixed, and the last showed possibly better improvement with drop sets.

1. A single drop set is at least as good as multiple sets. A drop set takes less time yet compares favorably to multiple sets, which means you can spend less time in the gym. Multiple sets aren't necessary.
2. Performing a drop set may be better for solo weight trainers. I reach this conclusion because in most weight-training studies, coaches are present at every move to encourage participants to exert all-out effort and to reach muscular failure. Most of us don't have the luxury of a coach, so performing a drop set may be a good way to absolutely ensure that you reach momentary muscular failure.

I perform drop sets on most of my exercises, and I can now be more confident that they're an effective way to train. At least in my case, they may be superior, since after performing a single set to failure I often doubt myself as to whether I've truly gone to failure, and a drop set practically guarantees that you do so.

Drop sets are more readily done using machine moves, since racking weights from a barbell can take long enough that the muscles involved recover somewhat while you're getting the barbell ready for the next leg of your drop set. On a machine, it's usually just a matter of quickly moving a peg. Dumbbells work well with drop sets too, since most gyms have racks of dumbbells with different weights, so you can easily replace a set of dumbbells and then quickly grab the next weight down.

Drop sets are really inconvenient with the deadlift, at least in my gym, since replacing 20 kg (45 lb) plates on a barbell on the floor takes time. So when I do deadlifts, I often use another technique similar to a drop set, rest-pause. Rest-pause involves resting just long enough, perhaps 5 to 10 seconds, after a set until you're able to perform one more repetition. This can be repeated as many times as you like — I typically do it around 3 times.

PS: For more on the benefits of resistance training, see my book, [Muscle Up](#).
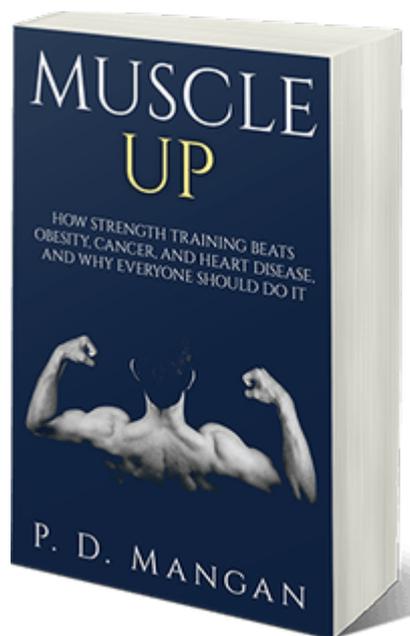
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